

PETRUSEVICH, R. L.

The nature of the hardness and the strength of metals and alloys. S. T. Kishkin and R. L. Petrusovich (A. A. Baikov Metallurg. Inst. Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1948, 87-98 (in Russian); cf. C.A. 41, 34204. — (1) Curves of the Brinell hardness B with a 10-mm. steel ball, under loads P varying up to 5000 kg., for various hardened carbon steels, have the same shape, even though they are widely different numerically; B increases rapidly with P at low P , then increasingly slower, and becomes const. at high P . Under $P = 5000$, a high-C steel had B more than twice as high as a low-C steel; however, the differences between various steels decrease with decreasing P , with B tending to the value of high-tempered steel with P tending to zero. Hence, martensite in hardened steel is not in itself hard, and the amt. of C in the supersatd soln. has scarcely any effect on B as long as the martensite lattice is not deformed. Only upon plastic deformation does the C content become significant; the detg. factor is the C pptd. from the solid soln. as a result of the deformation, the finely divided carbide blocking the crystallographic slip planes. High temper annuls this effect of C, hence, in all high-tempered steels, B is little affected by either the magnitude of P or the amt. of C, and all $B(P)$ curves are similar to that of Armo iron. (2) Hardened and annealed duralumin (Cu 3.78%) behave in the same way as steels. Thus, the $B(P)$ curves have the same shape, and, while under $P 3000$, hardened and annealed samples have very different B , the differences tend

to vanish under low P (25 kg.). In the hardened alloys, increasing plastic deformation causes gradual decompos. of the solid soln. with pptn. of fine particles blocking the slip planes; in annealed alloys, this decompos. is already completed and deformation can have no further significant effect. Incompletely aged alloys occupy an intermediate position, plastic deformation having some further strengthening effect. Duralumin contg. Mg (0.64%) and Mn (0.73%), in addn. to Cu (4.30%), show the strengthening effect of increasing P to a distinctly higher degree. (3) For aged duralumin subjected to short high-temp. heating the $B(P)$ curve has essentially the same character as for the quenched alloys. Subsequent aging brings about a considerable increase of B under high P , to almost the same extent as on aging after quenching. However, under low P , the aged samples have a low B , close to that of the quenched alloy. Consequently, the short high-temp. treatment after aging brings about irreversible structural changes detg. low B at the initial stages of deformation. (4) Fe-Ni alloys, from pure Fe and Ni, annealed 2 hrs. at 1000° and cooled at the rate of 10°/hr., show a sharp max. of B at 20% Ni under all P (50-2000 kg.). The yield strength σ has a max. at the same compn., and the reduction in area α min. at the same point, owing no doubt to the presence of the heterogeneous region $\sigma \rightarrow \alpha$; this leads to the conclusion that high B and high σ are detd. by phase heterogeneity, not by interatomic forces within each phase. In contrast to B and σ , the ultimate tensile strength at rupture S passes only through a very flat max., in the region of 45% Ni. While, for the 20% Ni alloy, B is by 240% higher than for pure Fe, S is only

ASB 51.4 METALLURGICAL LITERATURE CLASSIFICATION

by 14.3% higher, and the plasticity is lower. Hence, more alloying of Fe with Ni does not in any way result in high ultimate tensile strength, that is, brings about no appreciable strengthening in the final stages of plastic deformation. But in Fe-Ni-C alloys, where severe plastic deformation can bring about pptn. of slip-blocking carbides, S can attain up to 350 kg./sq. mm., as against 100-120 in ferrite. (5) In a general way, cold-working can only result in high S in solid solus. which, under plastic deformation, decompose with pptn. of a new disperse phase. This phase must be bound to the basic lattice by forces of at least the van der Waals order, possibly stronger.

N. Thon

VITKAUSKAS, J., red.; BARANAUSKAS, B., red.; SERKSUNYS, J., red.;
ZVIRENAS, A., red.; PETRUSEVICIUS, V., red.; ADOMAVICIUS, B.,
red.; KILAS, M., red.; SARKA, S., tehn. red.

[Scientific and technical information] Mokslinė - techninė
informacija. Vilnius, Valstybinė politinės ir mokslinės
literatūros leidykla, 1961. 40 p. (MIRA 16:5)

1. Lietuvos žemės ūkio mechanizacijos ir elektrifikacijos
mokslinio tyrimo institutas.
(Lithuania--Agricultural machinery)

Physics - Conductivity of HgI_2 semiconductor
 Card 118
 198-479

Author : Chepur, D. V.; Petrushevich, V. A.

Title : Additional conductivity of HgI_2 under the action of x-rays

Periodical : Zhur. tekhn. fiz., 25, No 9 (September), 1955, 1523-1529

Abstract : The authors discuss the problem of developing and studying the photoelectric properties of effective semiconductor receivers of x-rays and the fact that certain semiconductors when irradiated by x-rays change their resistance by tens and hundreds of thousands of times, which therefore can serve as indicators of x-rays of even insignificant intensities. They note that S. V. Svechnikov (ibid., 22, 8, 1952) demonstrated that high sensitivity to x-rays is observed in CdS single-crystal, which is used now for certain practical purposes but is in limited use because of its considerable lifetime of photocurrent carriers. The authors discuss their experiments on HgI_2 , which shows extreme sensitivity to x-rays and considerably less inertia than CdS as indicated by oscillograms of photocurrent pulses (photocurrent in HgI_2 falls to zero in time equal to 0.001-0.002 second). They study the voltampere characteristics, lux-ampere characteristics, the sign of the photocurrent carriers. They establish that the photo sensitivity of HgI_2 essentially depends upon spectral composition of x-ray radiation and

PETROUSEVICH, V. O.

A new effective detector for x-rays. D. V. Cherny, V. O. Petrovich, and B. M. Bondarenko. *Neel. Zh.* No. 8, 1956. *Ussr. SSR. Zh. Fiz. i Khim.* No. 3, 86-89 (1956). It was discovered that HgI₂ is very sensitive to a beam of x-rays. HgI₂ should be applied for use with hard x-rays. The x-rays bring about a photoelec. current, which can be amplified by the use of visible light. HgI₂ can be used this way for the construction of photoresistors. Werner Jacobson.

AUTHOR: ~~Petrusevich, V.A. (Leningrad)~~ 14-00000-14-14

TITLE: A Book Written Without Knowledge of the Matter. Kniga, napisannaya bez znaniya dela.

PERIODICAL: Priroda, 1977, Nr 7, pp 123-124 (USSR)

ABSTRACT: This is a negative criticism of the book "Poluprovodnikovyye pribory" (Semiconductor Devices) by I.N. Petrov, published by the Voennoye izdatel'stvo Ministerstva Obrony SSSR, 1977, 128 pp, price 2 rubles, 21 kopeks. A long list of errors and misstatements, contained in this popular scientific paperback is quoted and the conclusion is drawn that the author had no knowledge of his subject.

1 Semiconductors

Card 1/1

L 18990-63

EWT(1)/EWP(q)/EWT(m)/BDS

AFFTC/ASD/ESD-3/IJP(C) GG/JD/JG

ACCESSION NR: AT3002450

S/2935/62/000/000/0164/0174

67
63

AUTHOR: Petrusevich, V. A.; Sorokin, O. V.

TITLE: Effective rate of surface recombination and criteria of its applicability [Conference on Surface Properties of Semiconductors, II Institute of Electrochemistry, AN SSSR, Moscow, 5-6 June, 1961]

SOURCE: Poverkhnostnyye svoystva poluprovodnikov. Moscow, Izd-vo AN SSSR, 1962, 164-174

TOPIC TAGS: recombination, surface recombination, semiconductor-surface recombination

ABSTRACT: Experimental verification of theoretical conclusions arrived at by G. L. Bir (Physics of solid-state body, 1, 67, 1959) is reported. Criteria of applicability of the effective rate of surface recombination (ERSR) have been established; the effect of the geometry of the near-surface space charge upon the spectral distribution of photoconductivity (SDPC) and photomagnetic effect (PME) has been clarified. Near-intrinsic-conductivity Ge and 10-130-ohms-cm Si were used in the experiments. Usual etching methods caused high surface

Card 1/2

L 18990-63

ACCESSION NR: AT3002450

potential barriers in Ge and Si²¹. The diffusion length and coefficient of ambipolar diffusion measured by SDPC and PME methods gave very close results, while ERSR values measured by the same methods differed widely. In some cases, theoretical and experimental SDPC curves did not agree. Hence, ERSR is inapplicable in many important practical cases, such as the treated surface of Si. On the basis of the above facts, more accurate formulas for computing parameters of SDPC and PME have been developed by the authors. "In conclusion, the authors are deeply grateful to G. Ye. Pikus and G. L. Bir for their interest in the work and useful advice." Orig. art. has: 4 figures and 19 formulas.

ASSOCIATION: Institut poluprovodnikov AN SSSR (Institute of Semiconductors, AN SSSR)

SUBMITTED: 00

DATE ACQ: 15May63

ENCL: 00

SUB CODE: PH

NO REF SOV: 008

OTHER: 005

Card 2/2

PETRUSEVICH, V.A.

Determination of semiconductor parameters by means of the
photomagnetic effect compensated by photoconductivity. Fiz.tver.
tela 4 no.2:461-464 F '62. (M.I.A. 15:1)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Photomagnetic effect) (Photoconductivity) (Semiconductors)

PETRUSEVICH, V.A.; SOROKIN, O.V.; KRUGLOV, V.I.

Applicability of the parameter "effective surface recombination rate" for Ge and Si. Fiz.tver.tela 3 no.7:2023-2030 J1 '61.

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Crystal lattices) (Germanium) (Silicon)

PETRUSEVICH, V.A.; LOBANOVA, T.N.

Nonlinear photoconductivity of silicon. Fiz.tver.tela 3
no.11:3546-3548 N '61. (MIRA 14:10)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Silicon--Spectra)

S/181/62/004/002/026/051
B101/B102

24/07/62

AUTHOR: Petrushevich, V. A.

TITLE: Determination of semiconductor parameters from the photo-magnetic effect compensated by photoconductivity

PERIODICAL: Fizika tverdogo tela, v. 4, no. 2, 1962, 461 - 464

TEXT: A description is given of a method of determining the effective surface recombination rate S , the ambipolar diffusion coefficient D , the diffusion length L , and the lifetimes of electrons and holes. The photo-magnetic effect $V_{ph.m.} = XQ/(Y + Q)$, where Q denotes the photon flux

density at the specimen, is compensated by the photoconductivity $V_{ph.c.} = VQ/Y$ (V = voltage at the ends of the specimen $\propto Y$). From $X = V_{ph.c.}$ one

obtains $X = (1B/C) \int_0^d j_p dx / q \int_0^d p dx$ (4), where l is the length of the specimen, B is the magnetic field strength, $C = 10^8$, j_p is the current,

Card 1/5

Determination of semiconductor...

S/181/62/004/002/026/051
B101/B102

Δp is the minority carrier concentration, d is the thickness of the specimen, and q is the electron charge. For $\tau_n \neq \tau_p$ (τ_n and τ_p are the lifetimes of electrons and holes, respectively) one has

$$d^2 p/dx^2 - \Delta p/L^2 = -G_p/L^2 \quad (5),$$

where $L^2 = D\tau = D(n\tau_p + p\tau_n)/(n + p)$, and G is the generation function:

$$G = \frac{\beta Q k (1-R)}{1 - R^2 e^{-2kd}} (e^{-kx} + R e^{-2kd} e^{kx}), \quad (7)$$

k is the absorption coefficient, R is the reflection coefficient, and β is the quantum yield. Eq. (5) is solved for the boundary conditions: $(1/q) j_p(0) = S p(0)$; $(1/q) j_p(d) = -S p(d)$, wherefrom p and j_p are calculated. From Eq. (4) one obtains

Card 2/5

S/181/62/004/002/026/051
B101/B102

Determination of semiconductor...

$$\frac{1}{X} = \frac{1}{V} = \frac{c}{IB} \frac{r}{kL^2} \frac{b\tau_p + \tau_n}{b+1} \frac{1 + Re^{-kd}}{1 - Re^{-kd}} \times$$

$$\times \frac{D^2 + S^2L^2 + 2SDL \cosh \frac{d}{L} - kL^2 \left(kD + S \cosh \frac{kd}{2} \right) \left(D + SL \tanh \frac{d}{2L} \right)}{D^2 + S^2L^2 + 2SDL \cosh \frac{d}{L} - L \left(kD \cosh \frac{kd}{2} + S \right) \left(D \tanh \frac{d}{2L} + SL \right)} \quad (9)$$

$b = \mu_n^h / \mu_p^h = \mu_n / \mu_p$; $r = \mu_p^h / \mu_p$, where μ_n^h , μ_p^h , μ_n , μ_p are the Hall and ohmic mobilities of electrons and holes, respectively. On the condition that kd and kL are much greater than unity, one obtains

$$\frac{1}{V} = \frac{c}{IB} \frac{r}{L} \frac{b\tau_p + \tau_n}{b+1} \frac{1 + \frac{SL}{D} \tanh \frac{d}{2L}}{\tanh \frac{d}{2L} + \frac{SL}{D}} \left(1 + \frac{S}{D} \frac{1}{k} \right). \quad (11)$$

Card 3/5

Determination of semiconductor...

S/181/62/004/002/026/051
B101/B102

from which it follows that the functions $1/V = f(1/k)$ are linear. On the abscissa, the straight lines out off sections of $a = D/S$, wherefrom S can be calculated. L can be calculated from $(V_0/l)_{\text{thick}}$, $(V_0/l)_{\text{thin}}$ = $(1/L) (L^2/a + d/2)/(1 + d/2a)$. The equations .

$$\frac{1}{V_0} = \frac{c}{IB} \frac{r}{L} \frac{b\tau_p + \tau_n}{b+1} \quad (13)$$

and

$$\frac{1}{V_0} = \frac{cr}{IB} \frac{b\tau_p + \tau_n}{b+1} \frac{1 + \frac{d}{2a}}{\frac{L^2}{a} + \frac{d}{2}} \quad (14)$$

can be used to calculate: (1) the lifetime τ if $n = p = \tau$; (2) r if D is unknown; and (3) D if r is unknown. Advantages of this method: (1) V is independent of the light intensity if $Q \ll Y$. $Q(\lambda)$ need not be

Card 4/5

34237

Determination of semiconductor

S/181/62/004/002/026/051
B101/B102

measured, whereby the error is reduced and automatic measurement becomes possible. (2) Since neither R nor β is contained in the equations for S , L , and D , errors due to inaccurate values of R and β can be avoided. (3) S and L can be determined both on thick and thin specimens. (4) One single curve suffices for calculating S , L , D , and τ if $\tau_n = \tau_p$, and S/D and L if $\tau_n \neq \tau_p$. V. K. Subashiyev and Yu. I. Ravich are thanked for discussions. There are 4 references: 2 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: O. Garreta, J. Grosvalet, Progress in Semiconductors, I, London, 1954, 1956; W. van Roosbroeck, Phys. Rev., 91, 282, 1953.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad Institute of Semiconductors, AS USSR, Leningrad.

SUBMITTED: September 26, 1961

Card 5/5

PETRUSEVICH, V.A.; SUBASHIYEV, V.K.; MOROZOV, G.P.

Investigating germanium by photoelectric methods. Fiz.tver.tela
3 no.5:1505-1514 My '61. (MIRA 14:6)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Germanium--Electric properties)

9,4177 (1035, 1051)

26. 242-1

AUTHORS: Petrusevich, Y. A.

TITLE: Investigation of the ...

PERIODICAL: Fizika tverdogo tela.

PERIODICAL: Fizika (1959)

TEXT: V. A. Petrushevich has already published a paper on the lux-ampere characteristic for silicon (FTT, 1, 1695, 1959). These characteristics appeared even at a low light intensity. In this work the lux-ampere characteristics, spectral distribution of the photoconductivity and the influence of the following was studied: (1) the type of surface treatment and strongly absorbed light, gaseous atmosphere, and manner of surface treatment. The results are summarized as follows: (1) In the same manner the lux-ampere characteristic in modulated short-wave light is dependent on the type of surface treatment. (2) The photoconductivity approaches unity as the wavelength of the lux-ampere characteristic approaches the wavelength of the modulated light increases. (3) The lux-ampere characteristic also becomes linear as the intensity of the modulated light increases.

Card 1/3

Investigation of the ...

H. U. Harten. Phil. Res. Rep. ...

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of Semiconductors AS USSR, Leningrad)

SUBMITTED: July 31, 1961

Card 3/3

X

PETRUSEVICH, V.A.

Determining some parameters of semiconductors from the spectral
distribution curve of photoconductivity. Fiz.tver.tela 3 no.4:
1268-1271 Ap '61. (MIRA 14:4)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Semiconductors)

PETRUSEVICH, V.A.

Photoelectric method for investigating semiconductors. Zav.lab. 27
no.10:1215-1220 '61. (MIRA 14:10.

1. Institut poluprovodnikov AN SSSR.
(Semiconductors)

25689

S/181/61/003/007/011/023
B102/B214

24,7700

AUTHORS: Petrusovich, V. A., Sorokin, O. V., and Kruglov, V., I.

TITLE: Applicability of the parameter of the "effective surface recombination rate" for Ge and Si

PERIODICAL: Fizika tverdogo tela, v. 3, no. 7, 1961, 2023-2030

TEXT: The object of the authors was to demonstrate experimentally that cases in which the parameter of the "effective surface recombination rate" cannot be used for the characterization of the Si surface are realizable in practice, and that this parameter can be used generally for the characterization of Ge surfaces treated by the usual etching agents. The fact that the application of the effective surface recombination rate S_{eff} is not always justified has been referred to by Shockley and Read (Phys. Rev. 87, 835, 1952). Also the conditions of applicability of this parameter were theoretically studied earlier. The authors of the present paper investigated n-type and p-type germanium with a conductivity close to intrinsic conductivity, and also n-type and p-type silicon with resistivities of 10 to 130 ohm-cm. After establishing the ohmic contacts the surfaces of the individual samples were treated differently, i. e.,

Card 1/6

25689

S/181/61/003/007/011/023

B102/B214

Applicability of the parameter ...

etched by different agents and under different conditions. The method of measuring the field effect has been described elsewhere by Sorokin (PTE, No. 2, 68, 1959). The change $\Delta\sigma$ of conductivity related to the change of Ψ was determined from the field effect, and thus S_{eff} was found out.

Indeed, $S_{eff} = \frac{1}{\tau} \int_0^{\Psi_0} \Psi(x) dx$, where $\Psi(x)$ is the height of the surface potential barrier as a function of the coordinates, and τ is the volume lifetime of the nonequilibrium carriers. The thickness d of the barrier is defined as the normal distance from the surface where $\Psi = \Psi_0$ up to the place where $\Psi = 1$. The known theoretical relation $\Delta\sigma = f(\Psi)$ is used for the determination of Ψ_0 (J. R. Schrieffer, Phys. Rev. 97, 641, 1955). The results of the investigations are given in a table. The positive values of Ψ_0 correspond to the blocking and inversion barriers, and the negative values to the anti-blocking barriers. Of particular interest are the results for Si, as only hypothetical data exist on the effects of the above-mentioned etching agents. For example, a strong blocking or even an inversion layer appears on p-type Si after it has been etched according to method 4, while either a weakly blocking or an anti-blocking barrier appears in n-type Si. All

Card 2/6

25689
S/181/61/003/007/011/023
B102/B214

Applicability of the parameter ...

experiments were carried out in room atmosphere. The Table also contains data on the surface recombination rate calculated from the curves of the spectral distribution of photoconductivity. The following conclusions can be drawn from the results: 1) For sufficiently high surface potential barriers and the usual values of the diffusion length, a case is realizable in practice in which the notion of S_{eff} loses all sense. The higher the resistance of the sample, the lower is the value of V_0 for which this will be the case, because ϕ increases with Q . It is, therefore, to be expected that for semiconductors having a forbidden band width larger than that of germanium, the parameter S_{eff} will not be applicable for relatively small V_0 . 2) All conclusions which are based on the application of S_{eff} or τ_{eff} should be revised, and it should be investigated whether the criteria for the applicability of S_{eff} are fulfilled. This holds, above all, for the band structure of surface semiconductors with which S_{eff} or τ_{eff} is used as a function of V_0 . 3) It is necessary to improve the theory of

Card 3/6

25689

S/181/61/003/007/011/023
B102/B214

Applicability of the parameter ...

effects in which surface properties are involved, and to determine the role of the geometry of the potential barrier. 4) The criteria for the applicability of S_{eff} should also be improved. Above all, it should be kept in mind that τ in the surface charge layer is in general not equal to τ in the volume of the semiconductor. The authors thank G. Ye. Pikus, and G. L. Bir for discussions. There are 4 figures, 1 table and 14 references: 9 Soviet-bloc and 5 non-Soviet-bloc.

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of Semiconductors, AS USSR, Leningrad)

SUBMITTED: January 14, 1961 (initially) and February 10, 1961 (after revision)

Card 4/6

PETRUSEVICH, V. A.

ZHUKOV, V. P., ZASLAVSKIY, A. I., PETRUSEVICH, V. A., SEMENOVA, V. M.,
BUDNIKOV, I. A. and GELMAN, A. I.

Electrical and Thermal Properties on In Fe - Semiconductor with
Defect Structure.

report presented at the 18th. Conf. on Semiconductor Physics, Prague,
29 Aug - 2 Sep 1960

Inst. of Semiconductors, Acad. Sci. USSR Leningrad

SURASHIYEV, V.K.; DUBROVSKIY, G.B.; PETRUSEVICH, V.A.

Determining the recombination constants and the depth of the p-n junction from the spectral characteristics of photocells. Fiz. tver. tela 2 no.8:1978-1980 Ag '60. (MIRA 13:8)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Photoelectric cells)

86441

9.4160 (3201, 1003, 1137)

S/181/60/002/011/028/042

26.2420

B006/B060

AUTHORS: Petrushevich, V. A. and Sergeyeva, V. M.

TITLE: Optical and Photoelectrical Properties of In_2Te_3

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 11, pp. 2881-2884

TEXT: The authors report on their studies of absorption spectra and the spectral distribution of the photoconductivity of polycrystalline In_2Te_3 specimens in the α - and β -modifications. The absorption spectrum was measured by means of an infrared spectrometer of the MKC-12 (IKS-12) type with glass prism. The absorption coefficient K was determined by the relation $K = \frac{1}{\Delta d} \ln(I_1/I_2)$, where d is the specimen thickness (0.1-4 mm).

Δd is the difference in thickness of two specimens, I_1 and I_2 are the intensities of the passing light. O. M. Kornfel'd has already earlier pointed out that the passing beam is strongly scattered; in the β -modification the scattering is two to three times as strong as in the α -modification. This scattering leads to an apparent increase of K ; the

Card 1/4

86441

Optical and Photoelectrical Properties
of In_2Te_3

S/181/60/002/011/028/042
B006/B060

error caused thereby can be kept as low as possible by arranging the specimen immediately in front of the receiver (a large-area linear germanium photoresistor) instead of in front of the input slit. It was found that one and the same α -specimen beyond the absorption edge is twice as permeable, and the β -specimen is five times as permeable as when leaving scattering unconsidered and arranging the specimens in front of the input slit. Fig. 1 shows a typical absorption spectrum; curves 3 and 4 were taken from papers by Harbecke and Lautz, who worked with considerably less permeable specimens. The width of the forbidden band was determined from the K value by a formula by Macfarlane and Roberts; the respective values were found to be $\Delta E = 1.026$ eV and $\theta = 290^\circ \text{K}$ (a) for $\alpha\text{-In}_2\text{Te}_3$, and $\Delta E = 1.02$ eV and $\theta = 354^\circ \text{K}$ (b) for $\beta\text{-In}_2\text{Te}_3$. The activation energy was also determined after the "red" limit of photoconductivity. Fig. 2 shows the spectral photocurrent distribution. The scattering was found to lead to a decrease of the activation energy, when determining the latter from the spectral photocurrent distribution. If the forbidden band width is assumed to equate the energy of a quantum for this wavelength where the specimen sensitivity is half as large as the maximum, ΔE values of 0.94

Card 2/4

86441

Optical and Photoelectrical Properties
of In_2Te_3

S/181/60/002/011/028/042
R006/R060

and 0.92 ev, viz. about 0.1 ev less than in the determination after the absorption edge, will be obtained for both modifications. The authors thank V. P. Zhuze for having proposed the subject and for advice given, and M. A. Demin for grinding and polishing the specimens. N.A. Goryunova is mentioned. There are 2 figures and 5 references: 2 Soviet, 2 German, and 1 US.

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of Semiconductors of the AS USSR, Leningrad)

SUBMITTED: July 15, 1960

Card 3/4

86441

Optical and Photoelectrical Properties
of In_2Te_3

S/181/60/002/011/028/042
R006/R060

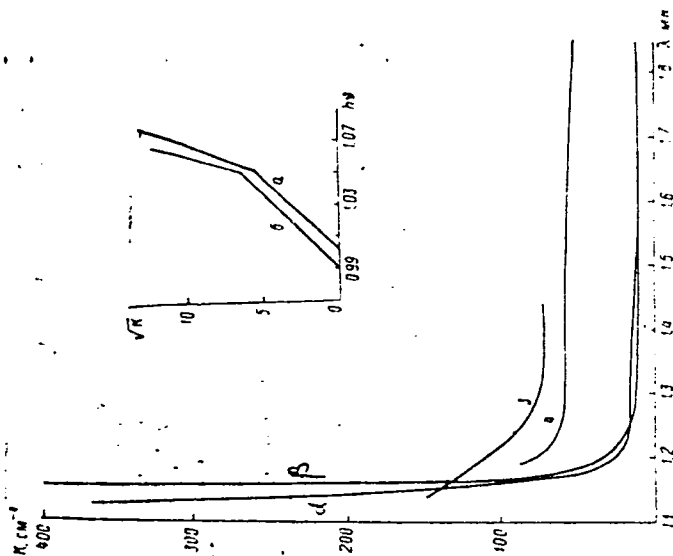


Fig. 1.

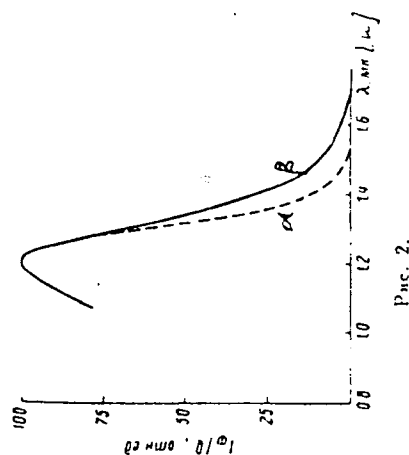


Fig. 2.

Card 4/4

80443

24.7600(1035,1043,1158)

S/191/60/002/011/010/042
B006/B060

AUTHORS Petrusevich, V. A. Sergeyeva, V. M., and Smirnov, I. A.

TITLE Relationship Between Thermal and Optical Properties of In_2Te_3

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 11, pp. 2404-2406

TEXT The authors have offered a report on measurements of the heat conductivity of the crystal lattice of In_2Te_3 in Ref. 1 and have found that the κ_{lat} of coarse-crystalline specimens is considerably larger than that of fine-crystalline ones (in the range of 200-400°K). In the study under consideration here the authors have attempted to clarify the causes for this anomaly and in the present article report on results obtained in this respect. All specimens examined whose heat treatment is specified belonged to the α modification. Fig. 1 shows $1/\kappa$ as a temperature function; $1/\kappa \sim T$. It is not possible to explain the additional heat conductivity by the assumption of electronic heat transfer or bipolar carrier diffusion, and the attempt is therefore made to explain $\Delta\kappa$ by the assumption of a

Card 1/3

86443

Relationship Between Thermal and Optical
Properties of In_2Te_3

S/187/60/002/011/010/14.
B006/B060

heat transfer by electromagnetic radiation $\Delta\alpha = \frac{16}{3} n^2 \sigma_0 T^3 L$ where n is the refractive index, $\sigma_0 = 5.67 \times 10^{-8} \text{ W/m}^2 \text{ deg}^4$, the Stefan-Boltzmann constant, and L is the photo mean free path. If the absorption coefficient K is introduced, one obtains $\Delta\alpha = 16n^2 \sigma_0 T^3 / 3K$. In order to check this relation experimentally, K measurements were conducted on In_2Te_3 in a wide wavelength range (from the main absorption edge to 14μ) by means of the infrared spectrometers of the type MKC-12 (IKS-12) and ZMP-2 (ZMR-2); prisms made of glass, LiF, and NaCl were used for the purpose. When taking into account the error in the K determination due to light scattering in the specimen, the values of K calculated from the measurement of $\Delta\alpha$ are in good agreement with those measured directly. One may therefore ascribe the additional heat conductivity to a heat transfer by electromagnetic radiation. The authors thank V. P. Zhuze for remarks and assistance; M. G. Kornfeld and A. I. Shelykh are mentioned. There are 3 figures, 2 tables, and 8 references: 5 Soviet and 3 German.

Card 2/3

86443

Relationship Between Thermal and Optical
Properties of In_2Te_3

S/181/60/002/011/032/042
B006/B060

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of
Semiconductors of the AS USSR, Leningrad)

SUBMITTED: July 15, 1960

Legend to the Table: I - $T, ^\circ\text{K}$; II - ϵ ; III - experiment; IV - K, cm^{-1}
(calculated from ϵ for $n=3.4$); V - K, cm^{-1} (calculated from ϵ for $n=4$);
VI - K, cm^{-1} (experimental, without scattering being taken into account).

I	II	III	IV	V	VI
280	10.35	2.5	7.47	10.34	20.0
300	9.66	3.1	7.41	10.25	21.0
320	9.05	3.9	7.14	9.89	21.0
340	8.52	4.7	7.11	9.84	21.0
360	8.05	5.3	7.48	10.36	20.0

Card 3/3

SUBASHIYEV, V.K.; PETRUSEVICH, V.A.; DUBROVSKIY, G.B.

Determining recombination constants from the spectral distribution
curve of photoconductivity. Fiz. tver. tela 2 no.5:1022-1024 My '60.
(MIRA 13:10)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Photoconductivity) (Semiconductors)

83023

S/181/60/002/008/042/045
B006/B063

24.7700

AUTHORS: Subashiyev, V. K., Dubrovskiy, G. B., Petrushevich, V. A.

TITLE: Determination of the Recombination Constants and the Depth of the Position of the p-n Junction From the Spectral Characteristics of Photocells

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 8, pp. 1978 - 1980

TEXT: The authors theoretically developed a method of determining various constants of a semiconductor with a p-n junction. For this purpose it is necessary to illuminate a p-n photocell with $l_p \gg l_n, L_n, L_p$ from the side of the n-type layer with light of two wavelengths, λ_1 and λ_2 . The absorption coefficients of the n-type layer are indicated by k_1 and k_2 . The straight lines representing $j_{s.c.} = f(1/k)$ cut the axes at two different points each, from the positions of which it is possible to determine the constants. $j_{s.c.} = \frac{qN}{\Delta} (1 + \frac{s}{D_p} \frac{1}{k})$; $a = -D_p/s$, $h = qN/\Delta$.

Card 1/3

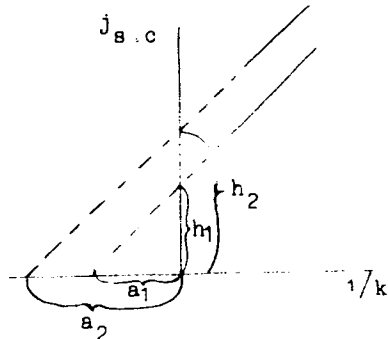
83023

Determination of the Recombination Constants and the Depth of the Position of the p-n Junction From the Spectral Characteristics of Photocells

S/181/60/002/008/042/045

B006/B063

($j_{s.c.}$ - short-circuit current density, D_p - hole diffusion coefficient in the n-type region, q - electron charge, L_p - diffusion length of the



minority carriers in the n-type region, l_n - thickness of the n-type region, L_n - diffusion length of the minority carriers in the p-type region, l_p - thickness of the p-type region, s - rate of surface recombination on the n-type surface, N - quantum flux density). Thus, for example, for $l_n/L_p \gg 1$:

$$L_p = (h_1 - h_2) / (h_2/a_2 - h_1/a_1), \text{ and for}$$

$l_n/L_p \ll 1$: $l_n = (h_1 - h_2) / (h_2/a_2 - h_1/a_1)$ If the ratio between the short-circuit current densities of the two wavelengths is denoted by a , the following relation is valid:

Card 2/3

83023

Determination of the Recombination Constants and the Depth of the Position of the p-n Junction From the Spectral Characteristics of Photocells

S/181/60/002/008/042/045

B006/B063

$s/D_p = (\alpha - 1)k_1 / (1 - \frac{k_1}{k_2} \alpha)$ The above relations for L_p and l_n may also be given for one wavelength, λ , if the sample has two different values for s . Here, α' denotes the ratio between the short-circuit current

densities, and $w = (1 + \frac{s_2}{D_p} \frac{1}{k}) / (1 + \frac{s_1}{D_p} \frac{1}{k})$

$l_n/L_p \gg 1$: $L_p = (1 - \alpha'w) / (\alpha'w \frac{s_1}{D_p} - \frac{s_2}{D_p})$

$l_n/L_p \ll 1$: $l_n = (1 - \alpha'w) / (\alpha'w \frac{s_1}{D_p} - \frac{s_2}{D_p})$

There are 1 figure and 1 Soviet references

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of Semiconductors of the AS USSR, Leningrad)

SUBMITTED: February 3, 1960

Card 3/3

PETRUSEVICH, V.A.

Effect of surface treatment on the spectral distribution for
photoconductivity of p-silicon. Fiz.tver.tela 1 no.11:
1695-1696 N '59. (MIRA 13:4)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Silicon--Electric properties)
(Photoconductivity)

~~24 (6)~~ 24.7700

66274

AUTHOR: Petrusovich, V. A.

SOV/181-1-11-9-27

TITLE: On the Influence of Surface Treatment on the Spectral
Distribution of the Photoconductivity of p-Silicon

PERIODICAL: Fizika tverdogo tela, 1959, Vol 1, Nr 11, pp 1695-1696 (USSR)

ABSTRACT: To obtain large rates of surface recombination s the sample grains were ground with finest abrasive powder. s reached values of 10^4 to 10^5 cm/sec. To obtain low s values the samples were first pickled in the same way as described in reference 3. After pickling the samples are carefully dried with filter paper. The s values obtained were 10^2 - 10^3 cm/sec. The spectral distribution was measured in the way described in reference 1. Reference 1 also contains the description of the measuring equipment. Figure 1 illustrates the typical spectral distribution curve of a p-type silicon sample KM7 (specific resistance

4

Card 1/3

66274

On the Influence of Surface Treatment on the
Spectral Distribution of the Photoconductivity of p-Silicon

SOV/181-1-11-9/27

75 $\Omega \cdot \text{cm}$), once after being ground and once after being coated by pickling with a film of $\text{K}_2\text{Cr}_2\text{O}_7$. In the first case, at a high s value, the maximum is pronounced, which is not the case after the second method of treatment. Similar conditions prevail in the case of a KMnO_4 coating.

Additional statements on these and other experiments will be published in the near future. The chief of the laboratory V. P. Zhuze took an interest in these investigations and the student of the LPI S. A. Zyablikova assisted in the measurements. There are 1 figure and 2 references, 1 of which is Soviet.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors of the AS USSR, Leningrad)

Card 2/3

Card 3/3

KAULAKIS, L.; DABUZINSKAS, K.; PUODZIUKYNAS, A.; GUDELIS, L.;
BASKYS, V.; PETRULIS, K.; GREBLIKAS, P.; PETRUSEVICIUS, V.;
MATKUS, A., red.; BANCEVICIUS, P., tekhn. red.

[Electrification of agriculture] Zemes ukio elektrifikavimas.
Vilnius, Valstybine politines ir mokslines literaturos leidykla,
1961. 541 p. (MIRA 15:3)
(Lithuania—Electricity in agriculture)

L 10426-67 BWT(m) (A) SOURCE CODE: UR/2956/66/016/000/0019/0021
 ACC NR AT6031774

AUTHOR: Burdin, K. S.; Parkhomenko, I. M.; Petrusevich, Yu. M.; Shestakova, S. V. 42

ORG: none

TITLE: Use of a chemiluminescent method to investigate the protective action mechanism of certain substances and their mixtures

SOURCE: Moskovskoye obshchestvo ispytateley prirody. Trudy. Otdel biologicheskoy, v. 16, 1966. Svobodneradikal'nyye protsessy v biologicheskikh sistemakh (Processes of free radicals in biological systems), 19-21

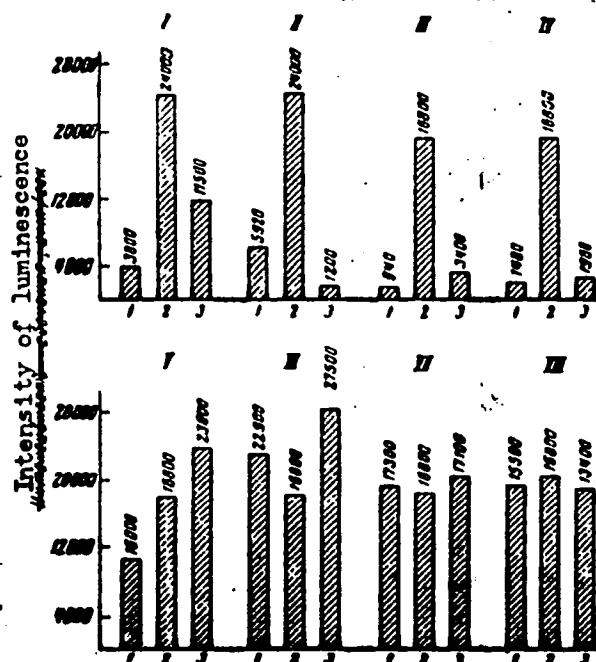
TOPIC TAGS: antiradiation drug, recombination luminescence, chemiluminescence, oxidation kinetics, oxidation inhibition, antibiotic

ABSTRACT: In earlier experiments on gamma irradiated SOTs and human amnion cells the action mechanism of the radioprotectors (veronal, medinal, evipol, AET, propylgallate, gramicidin, vinylpyrrolidone and pyridine) and the potentiated effects produced by combining radioprotectors appear to be related to their interaction with radicals during oxidation. The present study investigated the effect of the radioprotectors on recombined luminescence of radicals appearing during electrochemical oxidation of tyrosine in a 0.11 M solution of Na_2SO_4 . Intensity of luminescence was determined with an FEU-42 photomultiplier.

Cord 1/3

L 10426-67

ACC NR: AT6031774



Effect of protective substances on intensity of tyrosine chemiluminescence.

I—veronal; II—medinal; III—evipol; IV—AET; V—propylgallate; VI—gramicidin; VII—vinylpyrrolidone; VIII—pyridine.
1—natural luminescence of tested substances in an electrolytic cell in a 0.11M solution of Na_2SO_4 ; 2—chemiluminescence of tyrosine in a 0.11 M solution of Na_2SO_4 ; 3—chemiluminescence of tyrosine with the addition of the tested substances.

Card 2/3

L 10426-67

ACC NR: AT6031774

Findings show that AET, medinal, veronal and evipol quench chemiluminescence of radicals formed during tyrosine electrolysis; these apparently act as antioxidants. On the other hand, gramicidin and propylgallate increase chemiluminescence probably by increasing the number of radical recombinations. In testing the radioprotector effectiveness of the preparations on gamma irradiated cells, the barbituric acid derivatives (veronal and evipol) offered little protection. Pyridine increased the survival of SOTs cells irradiated with a 900 r dose from 19.5 to 40%. No potentiated effect was produced by combining AET with veronal or AET with evipol. Survival of cells was markedly increased by combining AET with propylgallate, AET with gramicidin, AET with vinylpyrrolidone, anoxia with vinylpyrrolidone and anoxia with pyridine. However, a potentiated effect cannot be produced by combining gramicidin with vinylpyrrolidone. It is concluded that a potentiated radioprotective effect is produced by combining preparations with different action mechanisms in relation to radicals. Orig. art. has: 1 table.

SUB CODE: 06, 07/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001

Cord 3/3 ^{6/12}

SECRET

1. The following information was obtained from a source who has provided reliable information in the past.

2. The source has provided information that is reliable and accurate.

1. The first part of the document is a letter from the

Director of the Central Intelligence Agency to the

President of the United States, dated 10/10/62.

1. ANNOTATION: PETERSEN, V.M.

Researching chemiluminescence spectra of unsaturated fatty acids and some biological lipids. Nauch. i tekhn. shkoly; biol. nauki no. 3 (82-83) 1980. (MIRA 28:8)

2. Rekomendovana kafedry biofiziki Moskovskogo gosudarstvennogo univ.-izdatel'stva.

PETRUSEVICH, Yu.M.; KONOPLYANNIKOV, A.G.

Chemiluminescence following action of free radicals on normal
and irradiated yeast cells. Biofizika 10 no.3:524-526 '65.
(MIRA 18:11)

1. Biologo-irochvennyy fakul'tet Moskovskogo gosudarstvennogo
universiteta imeni Lomonosova i Institut meditsinskoy radiatsii,
Obninsk. Submitted Aug 1, 1964.

ACCESSION NR: AT4015874

S/3055/63/000/002/0098/0108

AUTHORS: Vaynshteyn, L. A.; Petrushevich, Yu. M.; Prozorova, L. A.

TITLE: Diaphragms for H_{01} mode in a round waveguide

SOURCE: AN SSSR. Fizicheskaya laboratoriya. Elektronika bol'shikh moshchnostey (High-power electronics), no. 2, 1963, 98-108

TOPIC TAGS: waveguide, diaphragmed waveguide, round diaphragmed waveguide, H_{01} mode, coupled cavities, coupling coefficient, resonant frequency splitting, transmission coefficient

ABSTRACT: The transmission coefficient of the H_{01} mode in a round waveguide through a transverse metallic partition with a small circular opening is calculated. A connection is established between the transmission coefficient and the coupling coefficient between two cylindrical cavities, in which the H_{01} modes interact via a round

Card 1/4
2

ACCESSION NR: AT4015874

hole in the common end wall. A procedure is described for measuring the frequency of the coupled oscillations in such resonators. The measured values of coupling coefficient, which determines the splitting of the resonant frequency, are compared with the calculations. The theoretical curve for the variation of the ratio of hole radius to the waveguide radius with the frequency deviation lies somewhat higher than the experimental curve, the difference between them not exceeding 15%. "The authors are grateful to P. L. Kapitsa for suggesting the topic and to S. P. Kapitsa for valuable advice." Orig. art. has: 5 figures and 39 formulas.

ASSOCIATION: Fizicheskaya laboratoriya AN SSSR (Physics Laboratory, AN SSSR)

SUBMITTED: 00

DATE ACQ: 25Jan64

ENCL: 02

SUB CODE: GE, SP

NR REF SOV: 000

OTHER: 000

Card 2/4

ORLOV, V.N.; OPLOV, O. Y.; PANOV, Ye.N.; CHAYKOVSKIY, Yu.V.; YABLOKOV, A.V.;
GONCHARENKO, Ye.N.; GORBENKOVA, V.G.; KONOPLYANNIKOV, A.K.;
KUDRYASHOV, Yu.B.; REUK, V.D.; SHUENIKOVA, Ye.A.; TAPUSOV, B.N.;
PETRUSEVICH, Yu.M.; IVANOV, I.I.; GAPONENKO, V.I.; ANTONOV, V.A.;
VOROB'YEV, L.N.; BURLAKOVA, Ye.V.; BURDIN, K.S.; PARKHOMENKO, I.M.;
AGAVERDIYEV, A. Sh.; DOSKACH, Ya. Ye.; TARUSOV, B.N.

Brief news. Biol. MOIP. Otd. biol. 70 no.6:158-171 N-D '66.
(MIRA 19:1)

ACCESSION NR: AT4015877

S/3055/63/000/002/0122/0132

AUTHORS: Kapitsa, S. P.; Kondrat'yev, N. I.; Petrushevich, Yu. M.

TITLE: Microwave measurements with recording on graph paper

SOURCE: AN SSSR. Fizicheskaya laboratoriya. Elektronika bol'shikh moshchnostey (High-power electronics), no. 2, 1963, 122-132

TOPIC TAGS: microwave measurement, microwave measurement plotting, plotting table, resonance curve plotting, broadband wavemeter, field plotting, current voltage characteristic plotting

ABSTRACT: A method is described by which microwave measurements can be plotted on a graph paper automatically for further processing. The microwave measurement procedure used in the laboratory is also described. The key piece of equipment is an automatic plotting table employing some of the drives from an automatic recording potentiometer. The plotting table records the connection between two

Card 1/4

ACCESSION NR: AT4015877

quantities, one of which is varied by rotating a synchronous motor and the other one is varied by the measuring circuit. The uses of the equipment for the plotting of resonance curves, as a broadband wavemeter, for calibration against a heterodyne wavemeter, and for plotting of resonance curves with the aid of a klystron are described. In addition to recording resonance curves, the plotting table can be used to study the distribution of high-frequency fields, to study the current-voltage characteristics, and for many other applications. "The authors are grateful to P. L. Kapitza for interest in the work and for support." Orig. art. has: 9 figures and 10 formulas.

ASSOCIATION: Fizicheskaya laboratoriya AN SSSR (Physics Laboratory, AN SSSR)

SUBMITTED: 00

DATE ACQ: 25Jan64

ENCL: 02

SUB CODE: EE, SD

NR REF SOV: 003

OTHER: 000

Card 2/4

BEKIN, B.S.; PETRUSHEVICH, Y.L.M.

Study of rod oscillations in a squirrel-cage type resonator.
Elektron. bolsh. moshch. no.3:231-244 '64.

(MIRA 17:9)

1. 36322-65

ACCESSION NR: AP5010327

UR/0217/64/009/004/0522/0523

AUTHOR: Petrusarich, Yu. M.; Kriger, Yu. A.

TITLE: Model of an electrically excitable membrane system

SOURCE: Biofizika, v. 9, no. 4, 1964, 522-523

TOPIC TAGS: electrolysis, biophysics

Abstract: Kinetic equations are given for the processes in a model consisting of solutions of electrolytes separated by a porous membrane. Orig. art. has 5 formulas and 1 graph.

ASSOCIATION: Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova (Soil Biology Faculty, Moscow State University)

SUBMITTED: 09May63

ENCL: 00

SUB CODE: GC, LS

NO REF SOV: 003

OTHER: 005

JPES

Cord 1/1 ju

VITKAUSKAS, J., red.; ZVIRENAS, A., red.; SERKSNYS, J., red.;
ADOMAVICIUS, B., red.; KARANAVSKAS, B., red.; PETRUSEVICIUS, V.,
red.; GLETAVICIENE, S., red.

[Problems of the mechanization of agricultural production]
Zemes uio gamybos mechanizavimo klausimai. Vilnius, Lietuva
"Mintis," 1964. 118 p. [In Lithuanian] (MIRA 18:2)

1. Lietuvos zemeuikio mechanizavimas ir elektrifikacija
mokslinio tyrimo institutas.

PETRUSEWICZ, Kazimierz

"Darwinism and its Source; the 70th Anniversary of Darwin's Death," Problemy, ^{p/6},
1952.

PETRUSEWICZ, Kazimierz, prof.

Works of the Institute of Zoology. Nauka polska 11 no.1:
63-74 '63.

1. Członek korespondent Polskiej Akademii Nauk, Warszawa.
Dyrektor Instytutu Zoologii, Warszawa.

PETRUSEWICH, Karimierz

The ecologic center in Warsaw. Kosmos Biol 12 no.6:5-1-53.
'63.

PETRUSEWICZ, Kazimierz

International biological program. Kosmos biol 12 no.3:233-239
'63.

PETRUSEWICZ, Kazimierz

Address at Professor Tadeusz Wolski's funeral, June 16, 1956.
Nauki mater przyrod Lodz no.7:47-48 '60.

PETRUSEWICZ, Kazimierz (Wyszczególnienie)

The International Biological Program. Wszechswiat no.10:236-241
0 '63.

PETRUSEWICZ, Karol

Internat. ...
My-de ... 3.

... Nauka ... 1950-1956

... Akademi Nauk, Warszawa.

PETRUSEWICZ, Kasimierz.

Michurin as the founder of creative Darwinism. Izv. AN SSSR Ser. biol.
no. 5:147-151 S-O '55. (MLRA 9:2)

1. Akademik-sekretar' Otdeleniya biologicheskikh nauk Pol'skoy Akade-
mii nauk.

(GENETICS)

PETRUSEWICZ, K.

Further investigation of the influence exerted by the presence of their home cages and own populations on the results of fights between male mice. Bul Ac Pol biol 7 no.8:319-322 '59. (KRAI 9:6)

1. Laboratory of Ecology, Polish Academy of Sciences.
(Mice)

ANDRZEJEWSKI, R.; PETRUSEWICZ, K.; WALKOWA, W.

Preliminary report on results obtained with a living trap in a confined population of mice. Bul Ac Pol biol 7 no.9:367-370 '59.
(EEAI 9:6)

1. Laboratory of Ecology, Polish Academy of Sciences. Presented
by K. Petruszewicz.
(Mice) (Trapping)

PETRUSEWICZ, K.

An increase of mice population induced by disturbance of the ecological structure of the population. Bul Ac Pol biol 8 no.7:301-304 '60.
(EEAI 10:4)

1. Institute of Ecology, Polish Academy of Sciences.
(MICE)
(ECOLOGY)

1. INTRODUCTION

Intermittent, irregular, and sporadic, the following information is presented for your information.

The following information is presented for your information.

PETRUSEWICZ, Kasimierz

The international biological program. Moscow bio. 14 1965-
10 '65.

1. The first part of the document is a list of the names of the persons who were present at the meeting.

2. The second part of the document is a list of the names of the persons who were present at the meeting.

PETRUSEWICZ, Kazimierz (warszawa)

Development problems of biology and its present state. Nauka
polska 12 no.2:21-47 '64.

PETRUSEWICZ, Kazimierz

Gloss on Henryk Jablonski's lecture on the present state
of Polish science. Kosmos biol 13 no.3:198-199 '64.

Information concerning the work on the international
plan of studies. Ibid.:200-206

PETRUSZAK, Kazimierz, Prof.

Activities of the Institute of Ecology. Review Pol Academy 2
no.4:33-40 O-D '63.

1. Corresponding member of the Polish Academy of Sciences, Director
of the Institute of Ecology, Polish Academy of Sciences, Warsaw.

PETRUSEWICZ, S.

"Iosif Stalin; An Obituary" p. 121.

"Klement Gottwald Is Dead" p. 124.

"The Role Of Inspection In The Building Industry" p. 125.

(Przegląd Budowlany, Vol. 25, no. 4, Apr. 1953, Warszawa)

East European Vol. 3, No. 2,
SO: Monthly List of ~~Accessions~~ Accessions, /Library of Congress, February, 1954 ~~1953~~, Uncl.

ZIELINSKI, T.; PETRUSEWICZ, W.

Quantitative and qualitative changes of blood proteins in
pre-eclampsia and eclampsia. Polski tygod. lek. 6 no. 40:
1305-1312 1 Oct. 1951. (CJML 21:3)

1. Of the Obstetric-Gynecological Clinic (Director--Prof. H.
Gromadzki, M. D.) of Gdansk Medical Academy.

PETRUSEWICZ-HAUSMANOWA, Irena; KOZMINSKA, Anna

Electromyographic studies in transitory states between Raynaud's disease and scleroderma. Przegl. dermat. 49:135-137 '62.

1. Z Kliniki Neurologicznej AM w Warszawie Kierownik: prof. dr
I. Petruszewicz-Hausmanowa Z Kliniki Dermatologicznej AM w Warszawie
Kierownik: prof. dr S. Jablonska.
(RAYNAUD'S DISEASE) (SCLERODERMA)
(ELECTROMYOGRAPHY)

KOSSOVSKIY, Georgiy Nikolayevich, kand.tekhn.nauk; PETRUSHA, Aleksandr Karpovich, kand.tekhn.nauk; TIMOFEEV, V.A., red.; PROTASKEYA, I.V., red.isd-va; PARAKHINA, N.L., tekhn.red.

[Practice in the operation of automatic production lines in wood-working] Opyt ekspluatatsii avtomaticheskikh lini v derevoobrabotke. Moskva, Goslesbunizdat, 1960. 77 p.

(MIRA 14:1)

(Assembly-line methods)

(Woodworking industries)

PETRUSHA, Andray Karpovich, dotsent, kand.sel'sko-khoz.nauk; CHERNYAK, I.,
red.; KALECHITS, G., tekhn.red.

[Technical properties of the wood of principal tree species
of the White Russian S.S.R.] Tekhnicheskie svoistva drevesiny
osnovnykh porod BSSR. Minsk, Gos.izd-vo BSSR, Red.nauchno-
tekhn.lit-ry, 1959. 150 p. (MIRA 12:10)
(White Russia--Wood)

GARASEVICH, G.I., inzh.; ~~PETRUSHA~~ V. kand.tekhn.nauk

Automatic lines of universal machines. Der.prom. 6 no.8:7 Ag '57.
(MIRA 10:11)

(Woodworking machinery)

CATEGORY : General, General

ABS. JOUR. : RESEARCH, 1969, 1970, 1971

ABSTRACT : General

INDEX :

ORIG. FILE :

ADDITIONAL :

Card:

YASINSKIY, V.S., kandidat tekhnicheskikh nauk; PETRUSHIN, A.K., kandidat tekhnicheskikh nauk; MISHCHENKO, I.S., inzhener.

Automatic machine-tool line for the production of crate boards.
Der.prom. 5 no.2:6 F '56. (MLRA 9:5)

1. Ukrainskiy nauchno-issledovatel'skiy institut mekhanicheskoy obrabotki drevesiny (for Yasinskiy, Petrushin); 2. Kiyevskiy derevoobrabatyvayushchiy kombinat (for Mishchenko)
(Container industry) (Assembly line methods)

PETRUSHA, A. K.

Petrusha, A. K. "25 years of technical forestry education
in the Belorussian SSR," Sbornik nauch. trudov (Belorus.
lesotekhn. inst im. Kirova), Issue 7, 1948, p. 3-10.

SO: 1 - 3736, 21 May 63, (Belorus' Journal 'Inzh. Stroy, No. 17, 1948).

PETRUSHA, A. K.

Petrusha, A. K. "The technical properties of the wood of the black oak and its industrial uses," Sbornik nauch. trudov (Belorus. lesotekhn. in-t im. Kirova), Issue 7, 1948, p. 11-37.

So: U-3736, 21 May 53, (Letopis 'Zhurnal 'nykh Statey, No. 17, 1949).

PETRUSHA, G.N.

Principles of selecting the parameters for truck tractors in lumber
skidding. Nauch. trudy LTA no.96:33-39 '61. (MIRA 17:3)

PETRUSHEV, E. M.

The principles of electrical equipment engineering. Moscow, Gos. izdat. obor. i. t. s. s. s. s.,
1943. 160 p. (49-325-0)

T1690.14

BARDIN, I.; BELAN, R.; BEKHTIN, N.; BOYKO, V.; BORISOV, A.; BYCHKOV, V.;
VASILENKO, S.; VINOGRADOV, V.; VISHNEVSKIY, A.; VODNEV, G.; DVORIN,
S.; DZHAPARIDZE, Ye.; DIDENKO, V.; D'YAKONOV, N.; ZHURAVLEV, S.;
ZAKHAROV, A.; IVANOV, I.; KIRSANOV, M.; KOLIADA, G.; KOROBOK, P.;
LESKOV, A.; LUKICH, L.; LYUBIMOV, A.; MELESHKIN, S.; MYRTSYMOV, A.;
PERTSEV, M.; PETRUSHA, F.; PETERSKIY, A.; POPOV, I.; RAYZER, D.;
ROZHKOV, A.; SAPOZHNIKOV, L.; SEDOV, P.; SOKOLOV, P.; TEVOSYAN, I.;
TIKHONOV, N.; TISHCHENKO, S.; FILIPPOV, B.; FOMENKO, N.; SHEKOV,
A.; SHEREMET'YEV, A.

Fedor Aleksandrovich Merkulov. Koks i khim.no.7:62 '56. (MLRA 9:12)
(Merkulov, Fedor Aleksandrovich, 1900-1956)

PROCESSES AND PROPERTIES OF RAILS

9

Production of low-alloy Bessemer-steel rails in the Dzerzhinskii plant P. A. Vashchik, E. A. Istrusha, S. I. Sologub, I. P. Filichkin, I. I. Shevchenko and I. M. Lefkin. *Tsvetnye Proizv. Met.* 11, No. 10-11, 70-3 (1939), cf. C. A. 33, 54379.—The mech. and metallographic properties of rails produced from 0.3-0.6% Cr steel were better than those of steels lower in Cr. Steel contg. Cr 0.2-0.6 and C not below 0.43% produces rails with a tensile strength of not less than 80 kg. sq. cm. In spite of the high tensile strength the hardness of the rails is satisfactory even with a C content of 0.50%. The impact resistance at -20° is not less than that of ordinary rails. At normal temps. the impact resistance is slightly lower. A considerably greater impact resistance was obtained in rails to which Al had also been added and in rails contg. little Cr and deoxidized with ferrotitanium. The macro structure of Cr-steel rails is considerably better than that of ordinary rails. The rails should contain not less than 0.44% C. The mech. properties of steels to which ferrochrome had been added in the cupola were better than those to which ferrochrome had been added directly to the converter. Best results are obtained from Khailov cast Fe contg. C 4.0-4.5, Mn 10.0-12.5, Si 2.5-3.5, Cr 5.5-7.5 and P not over 0.26%. The optimum compn. of Cr rail steel is C 0.44-0.50, Mn 0.70-0.90, Si 0.20-0.30 and Cr 0.40-0.60%.

W. R. Henn

ASB S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

Low alloy Bessemer railroad rails — P. A. Vozokubov, F. A. Petrovich, N. I. Shugart, L. P. Fishchenko, I. I. Marychenko and I. M. Letkin. *Tsvetnyy Proekt Met* 11, No. 7, p. 41 (1960). — In steel deoxidized with Fe-Mn and alloyed with Khalikov cast iron (Si 3.5-3.6, P not over 0.25%), the tensile strength, creep limit and hardness of the exptl rails are considerably higher and the elongation and impact strength slightly lower than those of the ordinary rails. The macrostructure of the exptl rails is nearly the same as, and the microstructure considerably better than, that of the ordinary rails. Rails to which Khalikov cast Fe had been added and to which Cr-Ni waste materials in the converter had been added showed no advantages over rails produced from steel to which only the Khalikov cast Fe had been added. Owing to the high cost of the Cr-Ni waste materials their addition to steel is not recommended. Melting the Khalikov cast Fe in Bessemer cupolas with an increased amt. of limestone causes no difficulties and produces low-alloy steels on a mass-production scale. For the production of steel of uniform chem. compn. the cast Fe should contain C 4.0-4.5, Mn 10-13, Si 2.5-3.5 and Cr 3.0-3.5%. The cupola charge should consist only of the Khalikov cast Fe. Mass production of the low-alloy rails requires no changes in the tech. process, except the raising of the temp. of the beginning of rolling to 1150°. The optimum compn. of steel contg Cr 0.15-0.25% is C 0.42-0.48, Mn 0.75-0.95 and Si not less than 0.20%. The tensile strength of 70-5% of the low-alloy Bessemer steel rails is not less than 80 kg/cm² (sq. mm).

W. R. Henn

72 12.15.1977 01
PETRUSHA, G.

Textile workers of the Ukraine are increasing the tempo. Tekst.
prom.8 no.2:3-4 F '48. (MLRA 8:11)

1. Ministr tekstil'noy promyshlennosti USSR
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Chapin-Lipschitz: ulcus acutum. Sbor.nauch.rab.Bel.nauch.-issl.
koshno-ven.inst. 4:353-356 '54 (MIRA 11:7)
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GROMOV, N.I., kand.med.nauk; ~~PETRUSHA, I.S.~~, vrach; SOSLAND, R.D., vrach

Terramycin in the prevention and treatment of suppurative skin
diseases. Sbor.nauch.rab.Bel.nauch.-issl.kozhno-ven.inst. 6:276-278
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SIROTKINA, T.N.; PETRUSHANKO, V.M.

Experience in using gamma-gamma logging in the Noril'sk region.
Vop. rud. geofiz. no.5:113-116 '65. (MIRA 12:2,

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Syntomycin - prophylactic agent in avitaminotic dyspepsia in calves. Veterinariia 30 no.6:35 Je '53. (MLRA 6:5)

1. Sovkhoz "Novoye" g. Sokol, Vologodskoy oblasti.

PETRUSHANOV, V. N. (Sr. Veterinarian)

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SC: Veterinariya; Vol. 3; no. 135; June 1 58 Unclassified. Trans. 12. 3. 1. 1. 1. 1. 1.

City of Sokol, Volynsk Oblast. Sokol: "Novoe."

VELT, I.D., inst.; LAMOUSKINA, T.I., inst.; NIK TIN, B.I., inst.;
PETRUSHAITS, V.I., inst.; SERGEYEV, V.V., inst.

Induction fluid-flow pickups with a unified output signal.
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T. P. DANKOVA, ZACHA 11, 198-001 (1981)